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August 22, 1996

By Hand

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW
Washington, DC 20554

DOCKET FILE COPY ORIGINAL

Re: Local Multipoint Distribution Service
CC Docket No. 92-297

Dear Mr. Caton:

On behalf of CellularVision USA, Inc., enclosed please find an original and four (4) copies of Reply Comments filed in response to the Fourth Notice of Proposed Rulemaking in the above-referenced proceeding.

Please direct any questions regarding this matter to the undersigned.

Sincerely,

Michael R. Gardner
Charles R. Milkis
William J. Gildea, III
Counsel for CellularVision USA, Inc.

Enclosures

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
Rulemaking to Amend Parts 1, 2, 21 and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services	)	CC Docket No. 92-297

REPLY COMMENTS OF CELLULARVISION USA, INC.

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August 22, 1996

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SUMMARY

The Commission has labored for over four years to ensure that the exciting, multi-dimensional broadband wireless LMDS technology will be available to consumers throughout the United States with sufficient unencumbered spectrum to be a meaningful competitive alternative to entrenched telephone and video service providers. The Commission's long journey – and the 10-year saga of the pioneer of LMDS, CellularVision, should end, hopefully in September, with the Commission's adoption of a Second Report and Order allocating to LMDS at least 250 MHz of the 300 MHz of 31 GHz spectrum proposed for LMDS in the Fourth NPRM. Further, by:

- restricting the access of LECs and major MSOs to a single LMDS license each outside of their service areas,
- realistically defining "small business,"
- adopting service and auction rules that allow flexible post-auction sublease arrangements and enhance the ability of small businesses to compete at auctions, and
- commencing LMDS spectrum auctions for a single 1.25 to 1.3 GHz license per BTA in 1996,

the Commission will facilitate the immediate introduction of new, facilities-based competition in two-way video, voice and data services – advancing the fundamental goal of the Telecommunications Act of 1996.

To fulfill its well-articulated goals for LMDS, the Commission cannot tolerate further delay, nor can it allow possible minor dislocations to the current limited unprotected users of the 31 GHz band to inhibit the prompt and robust nationwide deployment of LMDS with sufficient unencumbered spectrum. However, to

accommodate those limited users who now enjoy auction-free use of the 31 GHz band, and to facilitate without further delay the nationwide deployment of LMDS through spectrum auctions in 1996, CellularVision proposes a compromise whereby LMDS would be allocated 250 MHz from 31.025-31.275 GHz on a primary basis for two-way service, instead of the 300 MHz proposed by the FCC in the Fourth NPRM; 31 GHz point-to-point systems would be allocated the 31.0-31.025 GHz and 31.275-31.3 GHz bands on a primary basis for a total of 50 MHz, with LMDS afforded secondary status in those portions of the 31 GHz spectrum. With this compromise, there should be no basis to delay LMDS auctions of at least 1.25 GHz of spectrum before the end of 1996.

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Federal Communications Commission
Office of Secretary

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
Rulemaking to Amend Parts 1, 2, 21 and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services	)	CC Docket No. 92-297

REPLY COMMENTS OF CELLULARVISION USA, INC.

CellularVision USA, Inc.[1] ("CellularVision") by its attorneys, hereby files Reply Comments in response to the Fourth Notice of Proposed Rulemaking ("Fourth NPRM") (FCC 96-311) adopted July 17, 1996 in the above-referenced proceeding.

CellularVision,[2] the recognized pioneer of LMDS, reiterates its support for the

[1] CellularVision USA, Inc. Is publicly traded on the NASDAQ National Market under the symbol "CVUS."

[2] For purposes of this document, references to "CellularVision" include the following related companies which are majority owned and controlled by common principals: Suite 12 Group, which commenced the development of LMDS in the 28 GHz band, and for which the Commission twice has tentatively awarded a pioneer's preference (see Notice of Proposed Rulemaking, Order, Tentative Decision and Order on Reconsideration ("First NPRM"), CC Docket No. 92-297, 8 FCC Rcd 557, paras. 57-65 (1993); Third Notice of Proposed Rulemaking and Supplemental Tentative Decision ("Third NPRM"), 11 FCC Rcd 53, paras. 68-73 (1995); CellularVision Technology and Telecommunications, L.P., which licenses the CellularVision LMDS technology; and CellularVision of New York, L.P., which operates a commercial LMDS video service as an alternative to cable television in the New York Primary Metropolitan Statistical Area in the 27.5-28.5 GHz band pursuant to a commercial

prompt conclusion of this protracted proceeding with:

- the allocation of sufficient additional spectrum in the 31 GHz band for LMDS, which is necessary to compensate for the encumbered nature of the 150 MHz from 29.1-29.25 GHz;

- the issuance of one LMDS license per BTA encompassing the entire LMDS spectrum allocation, as LMDS licensees must have sufficient unencumbered spectrum to compete with entrenched telcos and cable operators;

- flexible service rules permitting post-auction subleasing of spectrum, which will allow the marketplace to determine the most efficient use of LMDS spectrum, and facilitate noncommercial and educational access to LMDS spectrum;

- eligibility restrictions that ensure that LMDS will be licensed to and operated by a new wave of providers by limiting the RBOCs and their affiliates, plus the ten largest cable MSOs and their affiliates, to acquiring an LMDS license in one BTA only – which BTA cannot be located in their telephone or cable service areas;

- a realistic definition of "small business," in accordance with the capital requirements for deploying an LMDS system throughout a BTA, to include an entity with average annual gross revenues of not more than $100 million for any of the preceding three years; and

- a 35% bidding credit for small businesses, with a 55% bidding credit for small businesses bidding for a particular license against a company with more than $200 million in annual revenues.

In addition, CellularVision is encouraged by the broad-based support now in the record for the Commission's allocation of 300 MHz at 31 GHz for LMDS, and for the auction of 1.3 GHz LMDS licenses in BTA's throughout the country before the end of 1996. However, in an effort to facilitate the most prompt and robust deployment of LMDS while minimizing potential displacement of the limited current users of the

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license granted by the Commission in 1991. See Hye Crest Management, Inc., 6 FCC Rcd 332 (1991).

31 GHz band, CellularVision proposes a compromise 31 GHz band plan that would accommodate both the Commission's well-recognized goals for LMDS, as well as those systems currently licensed to operate in the 31 GHz band on an unprotected, free spectrum basis.[3] Under this compromise plan, LMDS would be allocated 250 MHz from 31.025-31.275 GHz on a primary basis for two-way service, instead of the 300 MHz proposed by the FCC in the Fourth NPRM; 31 GHz point-to-point systems would be allocated the 31.0-31.025 GHz and 31.275-31.3 GHz bands on a primary basis for a total of 50 MHz, with LMDS afforded secondary status in those portions of the 31 GHz spectrum. CellularVision urges the Commission to promptly conclude this protracted proceeding with the adoption of its 31 GHz proposal, as modified by CellularVision's proposal, and to commence auctions of 1.25 GHz LMDS licenses before the end of 1996.

I. THE COMMISSION SHOULD PROMPTLY ALLOCATE THE 31 GHz SPECTRUM FOR LMDS

CellularVision reiterates its support for the Commission's reasoned proposal to designate, on a primary protected basis, 31 GHz spectrum to LMDS for hub-to-subscriber and subscriber-to-hub transmissions. As CellularVision stated in its Comments, in view of the severely encumbered nature of the 150 MHz from 29.1-

[3] The Commission's database apparently indicates that there are only 27 licensees operating such systems in the 31 GHz band. Despite the assertion by Sierra Digital Communications, Inc. ("Sierra Digital") that the Commission has underestimated the use of the 31 GHz band and that its database appears to be incomplete, Sierra Digital specifically cites only two additional licenses. See Comments of Sierra Digital, August 12, 1996, footnote 4.

29.25 GHz, the Commission must provide LMDS operators with sufficient additional unencumbered spectrum to ensure that LMDS systems will be able to provide consumers with the full panoply of two-way LMDS services.[4] CellularVision notes that numerous commenters, including a diverse group of LMDS proponents, satellite proponents and cable and telco entities, also support the Commission's proposal to allocate the 31.0-31.3 GHz band for LMDS.[5] Moreover, many of the commenters recognize the fact that the current 31 GHz systems were deployed with the full knowledge that their systems were based on an unprotected status; accordingly, these limited licensees, who are enjoying auction-free use of the spectrum, simply have no legitimate expectation of protection.[6]

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[4] See Comments of CellularVision USA, Inc. ("CellularVision"), August 12, 1996, p.7.

[5] See Comments of CellularVision, supra note 4, p.7; Comments of CellularVision Technology and Telecommunications, L.P. ("CT&T"), August 12, 1996, p.4; Joint Comments of The Association of America's Public Television Stations and Public Broadcasting Service ("Public TV"), August 12, 1996, p.3; Comments of RioVision, Inc., August 12, 1996, p.1; Comments of The Hewlett-Packard Company ("HP"), August 12, 1996, p.2; Comments of Texas Instruments, Inc. ("TI"), August 12, 1996, p.8; Comments of Endgate Corporation ("Endgate"), August 12, 1996, p.1; Comments of GE American Communications, Inc. ("GE Americom"), August 12, 1996, p.2; Comments of Hughes Communications Galaxy, Inc. ("Hughes"), August 12, 1996, p.2; Comments of Lockheed Martin Corporation ("Lockheed"), August 12, 1996, p.3; Comments of The Wireless Cable Association International, Inc. ("Wireless Cable"), August 12, 1996, p.3; Comments of ComTech Associates, Inc. ("ComTech"), August 12, 1996, p.5; Comments of Puerto Rico Telephone Company ("PRTC"), August 12, 1996, p.4; Comments of the Ad Hoc Rural Telecommunications Group ("RTG"), August 12, 1996, p.7.

[6] See Comments of TI, supra note 5, p.9; Comments of RioVision, supra note 5, p.2; Comments of Wireless Cable, supra note 5, p.3; Comments of ComTech, supra note 5, p.7; Comments of GE Americom, supra note 5, p.3; Comments of

Importantly, of those few parties opposing the proposed 31 GHz LMDS allocation, none of those parties provides a valid public policy basis for refusing to allocate the 31 GHz spectrum for LMDS. For example, Sierra Digital claims that the LMDS industry has not justified a present need for the additional 31 GHz spectrum,[7] an unsupported claim that is directly contrary to the findings already made by the Commission in the First Report and Order and Fourth NPRM, as well as to the voluminous record developed in this proceeding since CellularVision filed its Petition for Rulemaking in September 1991. Throughout this protracted proceeding CellularVision, as well as other proponents of LMDS, have consistently maintained that each LMDS operator must have at least 1 GHz of unencumbered spectrum to be a competitive broadband alternative to telcos and cable operators.[8]

Moreover, as the Commission, the LMDS industry and even the 28 GHz satellite industry all have recognized, the Commission's comprehensive 28 GHz band plan did not allocate sufficient unencumbered spectrum to meet the requirements of LMDS.

Hughes, supra note 5, p.2.

[7] See Comments of Sierra Digital, supra note 3, pp. 9-11.

[8] See Comments of ComTech, supra note 5, p.2; Comments of RioVision, supra note 5, p.1; Reply Comments of CellularVision, October 10, 1995, pp.21-22; Reply Comments of HP, October 11, 1995, p.2; Reply Comments of GHz Equipment Company, Inc., October 11, 1995, p.2; Comments of Titan, September 7, 1995, p.3; Comments of TI, September 7, 1995, p.15; Comments of Bell Atlantic Corporation, September 7, 1995, p.3; Comments of BellSouth Corporation, September 7, 1995, p.6; Comments of Northern Telecom, Inc., September 7, 1995, pp.3-4; Comments of Endgate, September 8, 1995, pp.4-5; Comments of Pacific Telesis Wireless Broadband Services, September 7, 1995, p.1.

While the Commission did allocate a total of 1 GHz in the 28 GHz band for LMDS, subscriber-to-hub transmissions are prohibited in the 150 MHz from 29.1-29.25 GHz, a severe disadvantage for a two-way broadband system that is intended to compete with entrenched telcos and cable operators. By focusing merely on the amount of 28 GHz spectrum allocated for LMDS without considering the substantial encumbrance on the use of 150 MHz of that spectrum, Sierra Digital apparently ignores the well-reasoned basis in the record for the Commission's proposal to allocate additional spectrum for LMDS in the 31 GHz band. Not surprisingly, the allocation of 300 MHz at 31 GHz for LMDS, which already had the Commission's support by virtue of the adoption of the Fourth NPRM, attracted the universal support of the LMDS industry and the 28 GHz satellite industry – industries that rarely have been in agreement during the years of contentious deliberations in this proceeding.[9]

Sierra Digital further asserts that the FCC has underestimated the current use of the 31 GHz band, and that the Commission's database appears to be incomplete.[10] Importantly, however, Sierra Digital has failed to provide any documentation to support its claim that "the Commission's count of 27 licensees is low," other than to cite to only two additional licenses which it claims exist.[11] Even if Sierra Digital is correct, and even if there are a few more 31 GHz licenses than reflected on the

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[9] See note 5, infra.

[10] See Comments of Sierra Digital, supra note 3, p.2.

[11] See Id., footnote 4.

Commission's database, the current use of two-to-three dozen point-to-point licenses in localities scattered in a few areas of the country pales in comparison to the enormous potential consumer benefits resulting from the robust array of two-way video, voice and data services to be provided by LMDS licensees in 493 BTAs throughout the country and in U.S. territories throughout the world.

Accordingly, in terms of public interest benefits, the nationwide licensing of LMDS in the 28 GHz and 31 GHz bands will:

- provide consumers with an immediate, high quality competitive choice in two-way video, voice and data services;

- offer educational institutions like the pro-LMDS University of Texas-Pan American with an affordable means for effectuating distance learning goals;

- provide small businesses the real opportunity to participate in today's communications marketplace explosion through the ownership and/or operation of LMDS systems, a possibility noted repeatedly in the record in this proceeding by the Clinton Administration's Small Business Administration; [12]

- create major equipment markets for resilient defense contractors like Titan Information Systems and M/A-Com, Inc., as well as for small business start-ups like mm-Tech, Inc., who have invested significant resources to develop and supply LMDS equipment both in the U.S. and to the burgeoning global market; and

- generate billions of deficit reducing dollars for the Federal Treasury from

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[12] See Letter to Chairman Reed E. Hundt from Jere W. Glover, Chief Counsel for Advocacy, United States Small Business Administration, June 8, 1995; Comments of the Chief Counsel for Advocacy of the United States Small Business Administration in Support of the Motion to Proceed by CellularVision, February 14, 1995, pages 4-5; Comments of the Acting Chief Counsel for Advocacy of the United States Small Business Administration on the Second Notice of Proposed Rulemaking, March 28, 1994.

the nationwide licensing of LMDS through spectrum auctions in calendar year 1996.

These numerous, significant public interest benefits that will be realized from the deployment of LMDS nationwide far outweigh the limited benefits derived from the current limited use of the 31 GHz band. While the record in this proceeding does not elaborate with much detail on the existent or potential commercial goals or public interest benefits of current 31 GHz systems, the voluminous record in this proceeding clearly demonstrates that LMDS offers significant, immediate benefits to the public, particularly in terms of versatile, locally-based LMDS services. As an educational service providing a means for distance learning, as a telemedicine technology, as a video and programming vehicle for local voices, as a means to effectuate commercial transactions – LMDS has tremendous community-based applications beyond its well-recognized competitive potential for consumers seeking a low-cost alternative for two-way video, voice and data services. Thus, when balancing potential minor dislocations to the limited number of incumbent 31 GHz licensees – licensees who have been given free access to spectrum on a non-protected basis, the Commission must give appropriate weight to the enormity of LMDS's potential and the fact that LMDS licensees will pay through LMDS auctions for use of the now largely unused 31 GHz spectrum. Clearly, this balancing of public interest benefits overwhelmingly supports the adoption of the Commission's sound proposal to allocate the 31 GHz spectrum for LMDS.

However, in an effort to accommodate the use of the 31 GHz band by both

LMDS and current users, and to facilitate the prompt conclusion of this protracted LMDS Rulemaking proceeding, CellularVision suggests that the Commission modify its proposal to allocate the entire 300 MHz in the 31 GHz band to LMDS. Instead, CellularVision proposes that the Commission allocate a total of 50 MHz, from 31.0-31.025 GHz and 31.275-31.3 GHz, for point-to-point use on a primary basis, and a total of 250 MHz, from 31.025-31.275 GHz, for LMDS on a primary basis for two-way service. Additionally, in view of CellularVision's belief that its LMDS pioneered technology will not interfere with current 31 GHz uses, CellularVision suggests that LMDS licensees be given secondary access to the 50 MHz allocated on a primary basis for point-to-point use.

CellularVision believes that two 25 MHz segments of spectrum are sufficient to accommodate spectrum efficient use by point-to-point systems in the 31 GHz band, and that operation on that basis is technically feasible. Based on a technical paper prepared for CellularVision by Jeffrey A. Krauss, Ph. D. (attached as Exhibit 1), it is evident that the 31 GHz band currently is being used very inefficiently by a small number of licensees, and that with an increase in frequency stability and use of narrower channels, existing uses of the 300 MHz 31 GHz band can be accommodated in only 50 MHz, furthering the Commission mandate to encourage greater spectrum efficiency .[13]

Moreover, from the perspective of consumers seeking access to

[13] See Efficient Point-to-Point Use of the 31 GHz Band, prepared by Jeffery A. Krauss, Ph. D., a copy of which is attached as Exhibit 1.

CellularVision's LMDS technology on a nationwide basis, further delay in the nationwide licensing of LMDS is intolerable; accordingly, this compromise should provide LMDS with sufficient spectrum to overcome the encumbered nature of the 150 MHz from 29.1-29.25 GHz, while allowing the current modest 31 GHz users to continue to have access to 31 GHz spectrum on an auction-free basis.

II. THE COMMISSION SHOULD AWARD ONE LMDS LICENSE PER BTA

CellularVision reiterates its support for the FCC's proposal to assign the 1000 MHz in the 28 GHz band and the 300 MHz in the 31 GHz band together as a single 1.3 GHz LMDS license in each BTA, or alternatively, under CellularVision's compromise 31 GHz proposal, a single 1.25 MHz license per BTA. The Commission's proposal to issue one LMDS license per service area encompassing both 28 GHz and 31 GHz spectrum received the strong endorsement of numerous parties who have participated vigorously in this protracted proceeding.[14] As CellularVision explained in its Comments, since the additional spectrum in the 31 GHz band is intended to compensate for the encumbered nature of the 150 MHz from 29.1-29.25 GHz, pairing the 31 GHz LMDS spectrum with the 28 GHz LMDS spectrum in a single license is necessary to provide LMDS operators will sufficient unencumbered spectrum to

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[14] See Comments of CellularVision, supra note 4, p.9; Comments of CT&T, supra note 5, p.5; Comments of HP, supra note 5, p.4; Comments of RioVision, supra note 5, p.2; Comments of ComTech, supra note 5, p.5. By contrast, of the few parties that opposed the Commission's proposal to grant 1.3 GHz LMDS licenses, Wireless Cable, PRTC and WebCel Communications, Inc. ("WebCel"), none is recognized as having any particular knowledge about LMDS system design or operations.

deploy systems that can compete with incumbent LECs and cable operators, and to allow LMDS licensees to take full advantage of technical innovation and respond to marketplace needs.[15]

Further, in order to facilitate access to LMDS spectrum by those parties who require only limited spectrum and/or seek to provide services in limited geographic areas, CellularVision once again urges the FCC to provide licensees with maximum flexibility to enter into post-auction spectrum disaggregation and geographic partitioning arrangements. In this manner, the marketplace will determine the most efficient use of the LMDS spectrum for meeting consumer needs in each BTA.[16]

Importantly, CellularVision noted in its Comments that auctioning 1.3 GHz licenses with flexible post-auction disaggregation and partitioning authority should achieve a further, significant public interest benefit by facilitating access to LMDS

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[15] Pursuant to the grandfather provision adopted in the First Report and Order, CellularVision of New York, L.P.'s ("CVNY") 1991 commercial license authorizing unencumbered use of the 27.5-28.5 GHz band was modified to substitute the encumbered 150 MHz from 29.1-29.25 GHz for the unencumbered 150 MHz from 28.35-28.5 GHz. See First Report and Order, paras. 51-56. Consistent with the Commission's uncontroverted view as expressed in the Fourth NPRM that an LMDS licensee must have additional spectrum in order to compensate for the encumbered 150 MHz from 29.1-29.25 GHz, and that CVNY is required to give up 150 MHz of its exclusive commercially licensed spectrum for that 150 MHz of encumbered spectrum, CVNY should be afforded access to any additional spectrum allocated to LMDS.

[16] In regard to this fundamental requirement for LMDS licensee flexibility, the Commission should not mandate the use of any particular technology or modulation scheme, as digital technology may ultimately prove to be appropriate for certain applications of LMDS, while analog technology may be most appropriate for other applications of LMDS. The Commission should afford licensees maximum flexibility to deploy the most suitable LMDS technology, which will allow LMDS to be most responsive to the needs of the marketplace.

spectrum by non-profit and educational institutions, which are not likely to be in a financial position to bid for LMDS licenses. This arrangement would address the needs of the Association of America's Public Television Stations/Public Broadcasting Service ("Public Television"), an active participant throughout the LMDS proceeding, which in its Comments expressed concern about whether the Commission's rules for LMDS will include some means of allowing noncommercial educational uses of LMDS.[17] In this regard, Public Television, like CellularVision, urges the Commission to adopt flexible LMDS service rules that permit subleasing. Moreover, in order to encourage commercial entities to enter into arrangements for noncommercial and educational access to LMDS spectrum, both CellularVision and Public Television urge the Commission to adopt special incentives for licensees offering access to LMDS spectrum for noncommercial educational use.[18] In this regard, the important goals for distance learning applications of LMDS that have been addressed by the University of Texas-Pan American in the 28 GHz record will also be advanced since non-profit and educational institutions would be afforded access to the LMDS spectrum necessary to realize their high-tech educational goals.[19]

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[17] See Comments of Public Television, supra note 5, pp. 3-4.

[18] See Id., p.3; Comments of CellularVision, supra note 4, p.11.

[19] See Letter to Chairman Hundt and Commissioners from Steve Copold, Director of Information Resources, The University of Texas - Pan American, February 29, 1996 ("The future of rural education, through distance learning, and telemedicine, as a reliable clinical medium, are in dire need of a wireless platform such as LMDS.").

III. ELIGIBILITY OF LECs AND CABLE OPERATORS TO HOLD LMDS LICENSES

CellularVision and numerous other commenters agree with the Commission that LMDS will be a significant source of competition to both LECs and cable operators, and that as a result, some level of restriction on the eligibility of incumbent LECs and cable operators to hold LMDS licenses is warranted.[20] CellularVision reiterates its view that the Commission should adopt restrictions that limit the seven Regional Bell Operating Companies and their affiliates, plus the ten largest cable MSOs and their affiliates, to acquiring an LMDS license in one BTA only – which BTA cannot be located in their respective telephone or cable service areas.[21]

While several LECs and cable operators filed Comments predictably arguing that the Commission should not adopt any restrictions on their ability to hold interests in LMDS licenses, numerous other parties offered a variety of compelling reasons in support of eligibility restrictions on LECs and cable operators. Echoing CellularVision's argument that the desire of an incumbent monopolist to hold onto market-share could create an economic incentive to warehouse or subvert the LMDS

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[20] See Comments of CellularVision, supra note 4, pp.12-14; Comments of CT&T, supra note 5, pp.2-4; Comments of MCI Telecommunications Corporation ("MCI"), August 12, 1996, pp.1-2; Comments of WebCel, August 12, 1996, pp.18-25; Comments of SkyOptics, Inc. ("SkyOptics"), August 12, 1996, pp.1, 11; Comments of Opportunities Now Enterprises Inc., August 12, 1996; Comments of The Competition Policy Institute, August 12, 1996, p.1; Initial Joint Comments of Allied Associated Partners, LP and GELD Information Services, August 12, 1996, p.3; Comments of RioVision, supra note 5, p.3; Comments of ComTech, supra note 5, p.10; Initial Comments of International Communications Electronics Group, August 12, 1996, pp.4-5.

[21] See Comments of CellularVision, supra note 4, p.14.

spectrum to a less competitive use,[22] WebCel and MCI observed that incumbent LECs and cable operators would have an incentive to warehouse spectrum since they would value the spectrum more highly than others because of the 'opportunity costs' of lost monopoly profits and market share.[23]

WebCel and MCI further noted that the warehousing incentive would not be alleviated by build-out requirements, which dictate only when a system must be constructed and service must commence, not what services must be offered – and an incumbent can warehouse spectrum by restricting it to complimentary, non-competitive services.[24] In this regard, numerous parties warned that LECs and cable operators would, at best, choose to use LMDS only to supplement their existing services.

Other commenters appropriately focused on the anti-competitive dangers of LEC and cable operator ownership of LMDS licenses even outside of their service areas. SkyOptics explained that LECs and cable operators would acquire LMDS licenses outside of their incumbent service areas as an "insurance policy" against other LECs and cable operators acquiring LMDS licenses in their monopoly service

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[22] See Comments of CellularVision, supra note 4, p.12.

[23] See Comments of WebCel, supra note 20, p.15, 22; Comments of MCI, supra note 20, p.6.

[24] See Comments of WebCel, supra note 20, p.23; Comments of MCI, supra note 20, note 7.

areas, in effect "coordinated interaction" to avoid each other's monopolies.[25]

Several parties also rejected the notion that LEC or cable operator ownership of LMDS licenses in their incumbent service areas would produce any economic efficiencies, pointing out that LMDS is a broadband wireless service that will not share infrastructure with existing LEC or cable wireline facilities.[26]

Taken collectively, the record in this proceeding compellingly demonstrates that LMDS offers the possibility of significant facilities-based competition to LECs and cable operators. By restricting the ability of LECs and cable operators to hold attributable interests in LMDS licenses in the manner advocated by CellularVision and numerous important pro-competitive commenters, the Commission will promote the explicit goals of the Telecommunications Act of 1996 ("Telecom Act") by introducing new, facilities-based competition through its nationwide licensing of LMDS in a new marketplace that is not dominated by incumbent LECs and cable operators.

IV. CONCLUSION

The Commission has labored long and hard at all levels for over four years to ensure that the exciting, multi-dimensional broadband wireless LMDS technology will be available to consumers throughout the United States, and available with sufficient unencumbered spectrum to be a meaningful competitive alternative to entrenched

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[25] See Comments of SkyOptics, supra note 20, p.6.

[26] See Comments of WebCel, supra note 20, p.16; Comments of MCI, supra note 20, p.3.

cable systems and telcos who now are being unleashed by the Commission's implementation of the Telecom Act. The Commission's long journey – and the 10-year saga of the pioneer of LMDS, CellularVision, should end, hopefully in September, with the Commission's adoption of a Second Report and Order allocating at least 250 MHz of the 300 MHz of 31 GHz spectrum proposed in the Fourth NPRM for LMDS. By finalizing this additional and vital allocation of LMDS spectrum, and by restricting the access of LECs and major MSOs to this spectrum, the Commission will ensure that LMDS spectrum auctions for a single 1.25 to 1.3 GHz license per BTA will commence in 1996 – during the same window of opportunity being created today by the Commission for telcos and cable system operators.

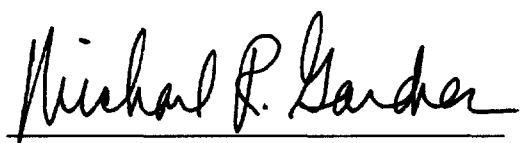
To fulfill its well-articulated goals for LMDS as expressed in the Report and Order and so eloquently stated by Commissioner Chong in an address to would-be LMDS licensees at an LMDS Conference on July 16, 1996, the Commission cannot tolerate further delay, nor can it let possible minor dislocations to the current limited unprotected users of the 31 GHz band inhibit the prompt and most robust deployment of LMDS for consumers across this country. To accommodate those limited users who now enjoy auction-free use of the 31 GHz band, CellularVision, as the recognized pioneer of LMDS, offers a compromise that should provide for the spectrum efficient use of 50 MHz of 31 GHz spectrum for these entities. With this compromise, there should be no basis to delay LMDS auctions of at least 1.25 GHz of spectrum (850 MHz from 27.5-28.35 GHz, 150 MHz from 29.1-29.25 GHz and 250 MHz from 31.025-31.275 GHz) later this year.

Finally, to ensure that the new, smaller entrepreneurial players are invited into the exciting LMDS marketplace, and to promote access for non-profit and educational institutions to LMDS spectrum, the Commission should fashion its service and auction rules to allow flexible post-auction sublease arrangements. Moreover, a realistic set of criteria for small business should be adopted, as noted above, to promote the fullest involvement of new competitive players in the LMDS industry nationwide.

At this final stage in the protracted LMDS Rulemaking proceeding, CellularVision applauds the Commission for its tenacious commitment to ensuring maximum consumer choice that LMDS represents, and urges the Commission, in its adoption of the final Report and Order, to seize those opportunities that remain for realizing promptly the full potential of LMDS.

Respectfully submitted,

CellularVision USA, Inc.

By: 

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Its Attorneys

August 22, 1996

EXHIBIT 1

Efficient Point-to-Point Use of the 31 GHz Band

prepared by Jeffrey A. Krauss, Ph. D.

for CellularVision USA, Inc.

The 31.0-31.3 GHz band is currently used very inefficiently by a small number of point-to-point licensees, but these licensees and their uses can be accommodated in far less spectrum if more efficient technology is employed. Tighter frequency tolerance and narrower channels could vastly increase the capacity of this band and improve spectral efficiency by a factor of at least six, whereby existing uses that now occupy the full 300 MHz could be accommodated in only 50 MHz.

Frequency Tolerance

Most notably, the frequency tolerance that is permitted in the 31.0-31.3 GHz band is ±0.03%. Calculations show that this stability requires that transmissions be permitted to drift ±9 MHz. See Notice of Proposed Rulemaking in ET Docket No. 95-183, Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands, 11 FCC Rcd 4930 at fn. 184 for the details of this calculation. Thus, in a 25 MHz channel, 18 MHz of the channel must be set aside, in effect wasted, to accommodate the drifting of the radio. This is required in order to assure that the radio does not drift into the adjacent channel. This leaves only 7 MHz to actually carry a signal.

At 38 GHz, the Commission has proposed to require a frequency tolerance of ±0.001%. Id. at para. 115. The Commission said:

> We agree with TIA that this improvement in frequency stability would maximize the use of each channel block, is well within the current state-of-the-art at these frequencies, and can be achieved without significant cost. Id.

In fact, radios with ±0.001% frequency tolerance have been available in the 38 GHz band since 1991. See Grant of Equipment Authorization for FCC ID# FC35DZMRC40DR, granted to Microwave Radio Corporation, granted June 25, 1991. See also, Specifications of MR-40DR, attached. This same stability can be achieved in the 31.0-31.3 GHz band.

If the frequency tolerance were ±0.001%, then the amount of the channel that is wasted to accommodate frequency drift is ±300 kHz, or a total of only 600 kHz.

Channel Bandwidth

Currently the Commission's Rules incorporate channels of 25 MHz and 50 MHz in this band. See Section 21.701(k) of the Commission's Rules. Most of the licensed users of the 31 GHz band are transmitting very low speed data to control traffic signals in the 25 MHz channels, and some radios are transmitting video pictures to monitor intersections in the 50 MHz channels. These bandwidths are needed because of the low frequency tolerance. But in a regime of tighter frequency tolerance, these signals can be carried in far smaller bandwidths.

The low speed data can be carried in far smaller channels, of only 2.5 MHz bandwidth or less. Using mature modulation methods such as QPSK or 4-FSK, T-1 data rates of 1.544 Mbit/sec can be carried in a 2.5 MHz channel or less. Even using 2-FSK, a technique that is less spectrally efficient but somewhat less expensive than 4-FSK, less than 5 MHz would be needed for a T-1. I believe that data rates of signals to control traffic lights are far lower than T-1 rates, so even lower bandwidths might be practical.

Broadcast quality video signals, including audio, occupy a bandwidth of 6 MHz. However, the video portion occupies less than 4 MHz, and only the video is needed for monitoring intersections and related security applications. This 4 MHz video signal can be carried in a 4 MHz microwave channel if VSB-AM modulation is employed, or in an 8 MHz channel if FM modulation is required. If less than broadcast quality is acceptable, then even lower bandwidths might be practical.

Consequently, in 25 MHz, as many as ten T-1 data signals or six 4 MHz video signals could be carried. All of the existing 31 GHz applications, now using six 25 MHz channel pairs, could be accommodated in a single 25 MHz channel pair, if it were suitably subchannelized. In this regard, a subchannel plan similar to that specified in Section 74.502 (aural studio-to-transmitter links) would seem to be appropriate.

Conclusion

The 31.0-31.3 GHz band, with its low frequency tolerance and wide channel bandwidths, is being used very inefficiently. An increase in frequency stability and narrower channels could increase spectral efficiency by a factor of six, thereby accommodating all of the existing uses of the band within only 50 MHz rather than the current allocation of 300 MHz.